

Title of the invention

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A method of manufacturing a thermostructural composite material bowl, ~~a bowl as obtained by the method, and use of the bowl as a crucible support~~

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Field of the invention

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The invention relates to manufacturing hollow parts out of thermostructural composite material, more particularly parts having a deep stamped shape that cannot be developed, that is not necessarily axially symmetrical, with an end wall portion and a side wall portion interconnected by portions in which the radius of curvature can be relatively small. For convenience, such parts are referred to throughout the remainder of the description and in the claims under the generic term of "bowls". A field of application of the invention is, for example, manufacturing bowls for receiving crucibles containing molten metal, such as silicon, in particular for drawing ingots of silicon, or of other metals in other metallurgical fields.

The term "thermostructural composite material" is used to mean a material comprising fiber reinforcement made of refractory fibers, e.g. carbon fibers or ceramic fibers, and densified by a refractory matrix, e.g. of carbon or of ceramics. Carbon/carbon (C/C) composite materials and ceramic matrix composite (CMC) materials are examples of thermostructural composite materials.

Background of the invention

A well-known method of producing silicon single crystals in particular for manufacturing semiconductor products consists in melting silicon in a receptacle, in putting a crystal germ having a desired crystal arrangement into contact with the bath of liquid silicon, so as to initiate solidification of the silicon contained in the crucible with the desired crystal arrangement, and in mechanically withdrawing an ingot of single crystal